

**Study Plan and Schedule
Hydrogeology of Val Verde County
with emphasis on the Devils River Watershed and San Felipe Springs**

Texas Water Development Board

1.0 Introduction

The Texas Water Development Board (TWDB) will lead a project to compile the best available scientific information and prepare an overview of the hydrogeology of Val Verde County. This project was requested by Representative Poncho Nevárez who has facilitated discussions of the water resources issues in the county with various technical stakeholders and consultants. Specifically, Representative Nevárez has requested that the TWDB assemble and analyze available hydrogeologic information concerning Val Verde County, the Devils River, and San Felipe Springs in a manner similar to that of a Priority Groundwater Management Area (PGMA) study. He also requested that the TWDB include the Texas Commission on Environmental Quality and the Texas Parks and Wildlife Department as agency stakeholders in this effort. Representative Nevárez requested that the study present an overview of the hydrogeology of Val Verde County and an assessment of the feasibility of employing hydrologic triggers to manage the aquifer. The results of the study will be available before the end of 2018, prior to the start of the 86th Texas Legislature.

Several organizations have been studying the hydrogeology and water resources of the Val Verde County area in recent years. The results of these studies, along with available data from ongoing work, will form the primary basis for this study. These studies include:

- TWDB – groundwater availability models, Texas Aquifer Study, other monitoring and technical studies.
- Texas Parks and Wildlife Department (with Bureau of Economic Geology) – groundwater and ecological studies in the Devils River watershed.
- Southwest Research Institute – Devils River watershed groundwater modeling and other studies.
- Val Verde County and City of Del Rio – hydrogeological studies and a groundwater model by EcoKai and Dr. William Hutchison.
- U.S. Geological Survey – groundwater monitoring and stream gaging.
- Other consultants: technical studies to support regional water planning and other projects.

Several groundwater flow models have also been developed that may have applicability to the development of hydrologic triggers. These models include:

- Edwards-Trinity (Plateau) and Pecos Valley aquifers groundwater availability model – a regional groundwater flow modeled developed by the Texas Water Development Board in 2004 (updated in 2008). A revised and updated version of

this model, which was converted to a one-layer model with an extended calibration period, was released in 2011.

- Kinney County groundwater flow model – a model developed by the TWDB specifically focused on groundwater, springs, and river flows in Kinney County but also extended into Val Verde County. This model was released in 2011.
- Val Verde County groundwater flow model – a groundwater flow model developed by Dr. William Hutchison (lead modeler for the Kinney County model) and based on the structure of the Kinney County model. This model was specifically calibrated to conditions in Val Verde County and released in 2014.
- Lower Pecos River and Devils River watershed models – groundwater flow model(s) being developed by the Southwest Research Institute to account for preferential flowpaths in the karstic aquifer (in progress).

2.0 Study Plan and Schedule

The scope of the study plan is to assemble and coordinate the various existing and ongoing studies relevant to the hydrogeological conditions in Val Verde County. This effort will focus on identifying the appropriate study resources, working with investigators currently active in the area, and ensuring that the appropriate stakeholders have ample opportunity to participate in the study. Stakeholder meetings will be held in Val Verde County and be open to the public. The TWDB will moderate the presentations and the public input at the meetings.

The study will evaluate the water and natural resources in Val Verde County, with a focus on whether and to what degree pumping would affect recharge, streamflow, or surface-water/groundwater interactions. Where feasible and as the project schedule permits, the TWDB may expand its existing groundwater data collection in Val Verde County to address specific data gaps relevant to surface-water/groundwater interactions. For example, the TWDB may pursue options with existing investigators for supplemental and limited data collection as appropriate. In particular, we will seek opportunities to place additional water-level recorders in area wells and stream courses to monitor streamflow, groundwater levels, and surface-water/groundwater interactions that may be affected by pumping in existing irrigation wells.

While Val Verde County is not formally part of a PGMA at this time, the current study is designed to parallel technical portions of a PGMA study to help determine if critical groundwater problems exist or will exist in a 50-year period. The current study may serve as input to a future PGMA study if it is determined by the Texas Commission on Environmental Quality. The PGMA study process specifies that the executive director of the Texas Commission on Environmental Quality will request studies from the TWDB on the area's hydrogeology and immediate, short-term and long-term water supply needs, and from the Texas Parks and Wildlife Department on the area's natural resources. At a minimum, this study will address the PGMA report requirements for TWDB.

Table 1 summarizes the proposed tasks, the responsible organizations, and a proposed schedule. Table 2 presents a proposed outline of the study report.

Table 1. Summary of the Val Verde County hydrogeological study plan and schedule

Activity	Description	Responsible or participating organizations	Proposed schedule
Technical scoping meeting	Review existing and ongoing studies for inclusion in the project	TWDB, with stakeholder agencies	September 2017
Stakeholder input meeting	Public meeting with stakeholders in Val Verde County to discuss scope and schedule of the project	TWDB, stakeholder agencies, and local/state stakeholders	October 2017
Data and analysis compilation	TWDB and stakeholder agencies compile and summarize existing data	TWDB and stakeholder agencies	August 2017 to March 2018
Draft report preparation	Prepare draft report*	TWDB with assistance as needed from stakeholder agencies	April to July 2018
Stakeholder agencies review	Stakeholder agencies review the draft report and provide comments	Stakeholder agencies	August 2018
Stakeholder presentation	Public meeting with stakeholders to discuss results	TWDB, with stakeholder agencies	September 2018
Finalize and submit report	Incorporate stakeholder comments and finalize the report	TWDB	December 2018

*Table 2 presents the proposed report outline.

Table 2. Proposed outline of the study report

1. Executive Summary
2. Introduction
 - a. Purpose and Scope of Study
 - b. Description of the Study Area
 - c. Stakeholder Participation
 - d. Previous Investigations
 - e. Ongoing Investigations
3. Hydrogeology of Val Verde County
 - a. Hydrostratigraphy
 - b. Groundwater Conditions
 - i. Groundwater Levels
 - ii. Flow Direction
 - iii. Recharge
 - iv. Quality
 - c. Springs
 - i. Locations and Flows
 - d. Surface Water
 - i. Flow
 - ii. Quality
4. Surface-water/groundwater Interactions
 - a. Baseflow Evaluation
5. Possible Hydrologic Triggers
6. Groundwater Models
 - a. Model review
 - b. Applicability of models to hydrologic triggers
7. Conclusions